

In the claims:

1. (currently amended) An optical service agent for managing communication services for a user in an optical communication system in which the user lacks at least some network information related to the services, the optical service agent comprising:

 a user-to-network interface (UNI) for interfacing with an optical communication network;
 network information related to the communication services, including network topological information; and

 optical service logic for obtaining a new optical communication path from the optical communication network via the UNI based at least in-part on the network information related to the communication services and managing said optical communication path for the user without exposing the network topological information to the user,

 whereby the user need not have the network topological information in order to obtain a new optical communication path.

2. (original) The optical service agent of claim 1, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

3. (original) The optical service agent of claim 1, further comprising auto-discovery logic for automatically discovering peer users.

4. (original) The optical service agent of claim 3, wherein the auto-discovery logic comprises an advertisement mechanism for sending and receiving peer information.

5. (original) The optical service agent of claim 4, further comprising a peer database for storing peer information.

6. (original) The optical service agent of claim 1, further comprising peer authentication logic for authenticating peer users.

7. (original) The optical service agent of claim 1, further comprising peer-to-peer signaling logic for communicating with peer users.

8. (original) The optical service agent of claim 7, wherein the optical service logic coordinates communication services with peer users via the peer-to-peer signaling logic.

9. (original) The optical service agent of claim 1, wherein the optical service agent comprises an application component and a network component.

10. (original) The optical service agent of claim 9, wherein the application component and the network component are situated within the user, and wherein the network component implements the UNI for interfacing with the optical communication network.

11. (original) The optical service agent of claim 9, wherein the application component is situated within the user and the network component is situated within the optical communication network, and wherein the application component and the network component communicate via the UNI.

12. (original) The optical service agent of claim 9, wherein the application component and the network component communicate via a control interface, and wherein the network component interfaces with the optical communication network via the UNI as a proxy for the application component.

13. (original) The optical service agent of claim 1, further comprising an application program interface (API) for interfacing with a user application.

14. (currently amended) A device comprising:

a user application requiring a new communication path from an optical communication network; and

an optical service agent for obtaining the new optical communication path from the optical communication network via a user-to-network interface (UNI) and managing said optical communication path for the user application, the optical service agent including network information related to communication paths, including network topological information, and optical service logic for obtaining new optical communication paths from the optical communication network via the UNI based at least in-part on the network information related to the communication paths, and without exposing the network topological information to the user.

15. (original) The device of claim 14, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

16. (original) The device of claim 14, wherein the optical service agent comprises auto-discovery logic for automatically discovering peer users.

17. (original) The device of claim 16, wherein the auto-discovery logic comprises an advertisement mechanism for sending and receiving peer information.

18. (original) The device of claim 14, wherein the optical service agent comprises a peer database for storing peer information.

19. (original) The device of claim 14, wherein the optical service agent comprises peer authentication logic for authenticating peer users.

20. (original) The device of claim 14, wherein the optical service agent comprises peer-to-peer signaling logic for communicating with peer users.

21. (original) The device of claim 20, wherein the optical service agent coordinates communication services with peer users via the peer-to-peer signaling logic.

22. (original) The device of claim 14, wherein the optical service agent comprises an application component and a network component, and wherein the network component implements the UNI for interfacing with the optical communication network.

23. (original) The device of claim 14, wherein the optical service agent comprises an application component that communicates with a peer network component in the optical communication network via the UNI.

24. (original) The device of claim 14, wherein the optical service agent comprises an application component that communicates with a network component via a control interface, and wherein the network component interfaces with the optical communication network via the UNI as a proxy for the application component.

25. (original) The device of claim 14, wherein the optical service agent comprises an application program interface (API) for interfacing with the user application.

26. (currently amended) A device for use in optical communication network, the device comprising:

- a controller for providing optical communication services; and
- an optical service agent for obtaining a new optical communication path from the controller and managing said optical communication path for a network user, the optical service agent including network information related to communication paths, including network topological information, and optical service logic for obtaining new optical communication paths from the optical communication network based at least in-part on the network information related to the communication paths, and without exposing the network topological information to the user.

27. (original) The device of claim 26, wherein the optical service agent implements a user-to-network interface (UNI) for interfacing with the network user.

28. (original) The device of claim 27, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

29. (currently amended) A system comprising:

an optical communication network; and

a first network user coupled to the optical communication network, wherein the first network user comprises an optical service agent for obtaining new optical communication paths from the optical communication network via a user-to-network interface (UNI) and for managing the optical communication paths for the first network user, the optical service agent including network information related to communication paths, including network topological information, and optical service logic for obtaining new optical communication paths from the optical communication network based at least in-part on the network information related to the communication paths, and without exposing the network topological information to the user.

30. (original) The system of claim 29, wherein the optical communication network comprises an automatically switched optical/transport network (ASON), and wherein the UNI comprises an ASON UNI.

31. (original) The system of claim 29, wherein the optical service agent comprises an application component and a network component, and the network component implements the UNI for interfacing with the optical communication network.

32. (original) The system of claim 29, wherein the optical service agent comprises an application component and the optical communication network comprises network component, and wherein the application component and the network component communicate via the UNI.

33. (original) The system of claim 29, further comprising a network component, wherein the optical service agent comprises an application component that communicates with the network component via a control interface, and wherein the network component interfaces with the

optical communication network via the UNI as a proxy for the application component.

34. (original) The system of claim 29, further comprising a second network user coupled to the optical communication network, said second network user comprising a second optical service agent.

35. (original) The system of claim 34, wherein each of said optical service agents comprises auto-discovery logic for automatically discovering the other of said optical service agents.

36. (original) The system of claim 34, wherein each of said optical service agents comprises peer authentication logic for authenticating the other of said optical service agents.

37. (original) The system of claim 34, wherein each of said optical service agents comprises peer-to-peer signaling logic for coordinating communication services with the other of said optical service agents.

38. (original) The system of claim 29, further comprising a second network user coupled to the optical communication network, said second network user excluding an optical service agent.

39. (currently amended) A method for automatically discovering and authenticating peer users in an optical communication system, the optical communication system comprising an optical communication network including a plurality of edge nodes through which the peer users access the optical communication network and an optical service server (OSS) for coordinating various communication services provided by the optical communication network, the method comprising:

registering peer users with the OSS, the OSS having network topological information;
distributing peer information to the peer users by the OSS, the peer information not including the network topological information; and
obtaining new optical communication paths from the optical communication network based at least in-part on the peer information, and without exposing the network topological

information to the user.

40. (original) The method of claim 39, wherein registering peer users with the OSS comprises: registering a first peer user with the OSS; and registering a second peer user with the OSS.

41. (original) The method of claim 40, wherein registering the first peer user with the OSS comprises: sending a registration request by a first peer user to a first edge node; authenticating the first peer user by the first edge node; and sending a join message by the first edge node to the OSS identifying the first peer user.

42. (original) The method of claim 41, wherein the registration request comprises a group identifier identifying a peer group.

43. (original) The method of claim 42, wherein the join message comprises: the group identifier identifying the peer group; and a user identifier identifying the first peer user.

44. (original) The method of claim 41, wherein authenticating the first peer user by the first edge node comprises: sending a challenge message by the first edge node to the first peer user providing an opportunity for the first peer user to positively identify itself to the optical communication network; sending a challenge response message by the first peer user to the first edge node positively identifying itself to the optical communication network through a cryptographic authentication mechanism; and authenticating the first peer user by the first edge node based upon the challenge response message.

45. (original) The method of claim 41, wherein authenticating the first peer user by the first edge node based upon the challenge response message comprises: interacting with a network element as part of the cryptographic authentication mechanism.

46. (original) The method of claim 41, further comprising: sending a success message by the first edge node to the first peer user upon authenticating the first peer user in order to confirm

authentication and registration of the first peer user.

47. (original) The method of claim 41, further comprising: storing information relating to the first peer user in a peer database upon receiving the join message from the first edge node.

48. (original) The method of claim 40, wherein distributing peer information to the peer users by the OSS comprises: sending information relating to the second peer user to the first peer user.

49. (original) The method of claim 40, wherein distributing peer information to the peer users by the OSS comprises: sending information relating to the first peer user to the second peer user.